

[0061] Referring now to FIG. 6, an exemplary physically-extending keypad 610 accommodated on the touchscreen device 100 with an appearance that replicates an actual dial pad is shown, in accordance with an embodiment of the present invention. In particular, this embodiment depicts dial mode of the touchscreen device 100 that is controlled by the configuration settings and presentation data communicated from a dialing application. Initially, outwardly-extending protrusions 125 form a physically-extending keypad 610 that provides the appearance of an actual telephone dial pad. In this way, each of the outwardly-extending protrusions 125 simulates a key of the physically-extending keypad 610 and each provides a responsive tactile feedback in reaction to a user-initiated actuation. Numeric characters 630 are displayed in association with each of the outwardly-extending protrusions 125, in accordance with the presentation data, thereby indicating the key function mapped to each of the outwardly-extending protrusions 125. In addition, this embodiment includes touch-sensitive keys 615 that may facilitate editing or dialing an entered phone number, as rendered at display area 620 proximate to prompt 625.

[0062] In a similar embodiment (not shown), if the pattern of the outwardly-extending protrusions 125 expressed on the flexible touchpad is naturally intuitive to most users, such as the physically-extending keypad 610, the UI display may resist displaying the numeric characters 630 as they would be redundant.

[0063] Turning to FIG. 7, an exemplary physically-extending keypad accommodated on the touchscreen device 100 demonstrating a feature for providing content output via outwardly-extending protrusions 720 expressed at a flexible touchpad is shown, in accordance with an embodiment of the present invention. In particular, this embodiment is configured in a text-entry mode of the touchscreen device 100 that is controlled by the configuration settings and presentation data communicated from an instant-messaging application. Initially, outwardly-extending protrusions 125 form a physically-extending keyboard 510 that provides the appearance of an actual keyboard. In this way, each of the outwardly-extending protrusions 125 simulates a key of the physically-extending keyboard 510 and each provides a responsive tactile feedback in reaction to a user-initiated actuation. Alphanumeric characters 530 are displayed in association with each of the outwardly-extending protrusions 125, in accordance with the presentation data, thereby indicating the key function mapped to each of the outwardly-extending protrusions 125, as discussed above with reference to FIG. 5.

[0064] However, in the embodiment illustrated in FIG. 7, the physically-extending keyboard 510 is aligned laterally on the touchscreen device 100 (e.g., landscape view), thereby providing additional space between the outwardly-extending protrusions 125 to enable more accurate typing. Accordingly, the size of a display area 710 is diminished to accommodate the enlarged physically-extending keyboard 510. In one instance, the selection of the enlarged physically-extending keyboard 510, as opposed to the physically-extending keyboard 510 of FIG. 5, is based on user preferences embodied as predefined configurations (e.g., the predefined configuration 260 of FIG. 2). These predefined configurations may be determined by a user's capabilities (e.g., left-handed or right-handed), by what a user considers a logical arrangement (e.g., disposed vertically or horizontally on the UI display), and the like.

[0065] With continued reference to FIG. 7, a particular predefined configuration may be related to sight-related capabilities of a user. In this instance, outwardly-extending protrusions 720 may be expressed in display area 715, or any other location on the UI display, to relay a communication in Braille. That is, within the display area 715, one or more user-input elements are manipulated to the extended position to form a Braille correspondence. Generally, these user-input elements are not in the active condition, as an input is not expected within the display area 715. Additionally, the tactile feedback feature for the Braille may be available, or disengaged, according to the predefined configurations.

[0066] Referring to FIG. 8, an exemplary configuration of outwardly-extending protrusions 125 guided by operations of an application running on the touchscreen device 100 is shown, in accordance with an embodiment of the present invention. In particular, this embodiment depicts interactive video mode of the touchscreen device 100 that is controlled by the configuration settings and presentation data communicated from a video application. Initially, outwardly-extending protrusions 125 are displayed in association with selectable graphic 910 of video content 905 rendered on a UI display. In this way, each of the outwardly-extending protrusions 125 may be actuated to influence the interactive video and each provides a responsive tactile feedback in reaction to the actuation. Additionally, a group of user-input elements 805 that are not in the extended orientation, but reside in the active condition, are provided to influence movement of a portion 935 of the interactive video. Although two different configurations of areas for accepting user-initiated actuations have been shown, it should be understood and appreciated by those of ordinary skill in the art that the UI display may be reconfigured to express a variety of combinations of active/idle and extended/retracted user-input elements as governed by configuration settings conveyed by the video application, and that the invention is not limited to those release mechanisms shown and described.

[0067] Referring to FIG. 9, an exemplary configuration of outwardly-extending protrusions similar to the outwardly-extending protrusions of FIG. 8 is shown, but also incorporating user-initiated inputs 920 when manipulating the user-input elements, in accordance with an embodiment of the present invention. In particular, this embodiment is configured to detect the user-initiated inputs 920 from a user 910 at some video content 905. As the user-initiated inputs 920 are expected by the video application at any point on the UI display, each of the user-input elements is set to an active condition. Accordingly, as the user 910 touches or drags a contact point 925 on the UI display, the video application recognizes the point of contact 925. Incident to recognizing the point of contact, the video application may leverage the ability to manipulate the video content 905 and the physical state of the user-input elements to provide the user 910 a robust interactive experience. In one instance, the portion 935 of the interactive video may adjust based on the recognized point of contact 925. In another instance, the execution of the interactive video is influenced 940 by the recognized point of contact. In yet another embodiment, outwardly-extending protrusion(s) 930 provide a pushback sensation proximate to the point of contact 925, thereby generating tactile feedback to the user 910 indicating that the user-initiated input 920 is being received.

[0068] Accordingly, the reconfigurable nature of the user-input elements provide for a robust user-interface environ-